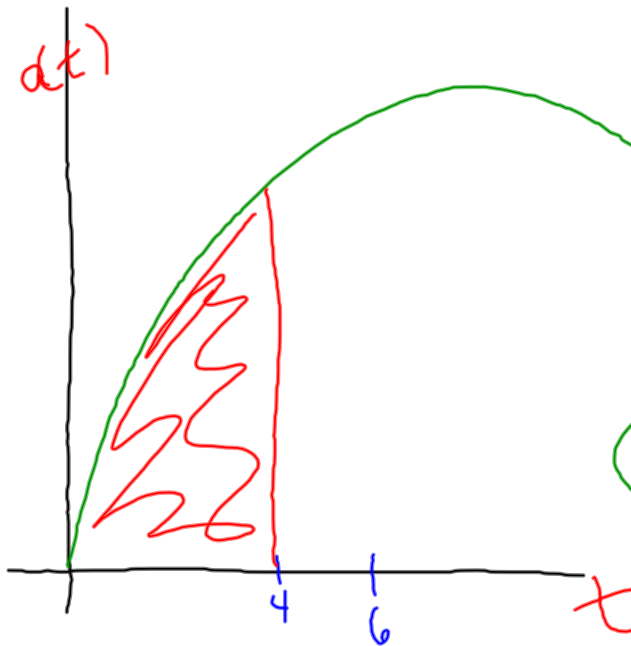


5)



$$v_0 = 20 \text{ m/s}$$

$$a) v(4 \text{ sec}) \approx 20 + 14 \approx 34 \frac{\text{m}}{\text{sec}}$$

$$v(t) = \int a(t) dt$$

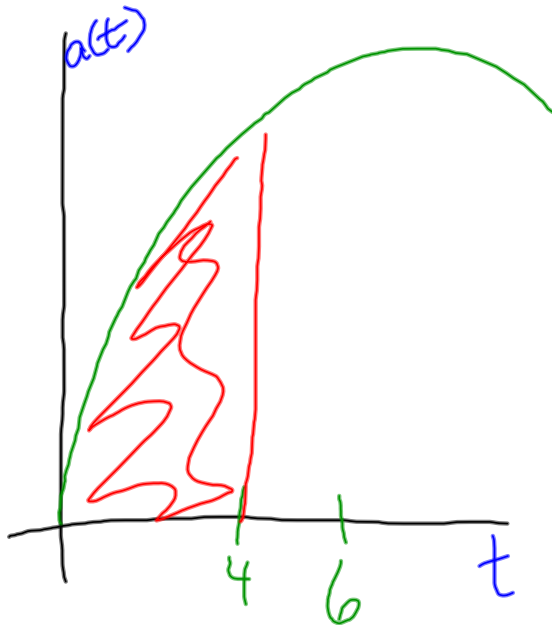
$$v(4) - v(0) = \int_0^4 a(t) dt$$

$$v(4) = v(0) + \int_0^4 a(t) dt$$

$$v(4) - v(0) = \int_0^4 v'(t) dt$$

area  
under curve

5)



$$v_0 = 20 \text{ m/s}$$

$$v(t) = \int_{v_0}^t a(t) dt$$

$$v(4) - v(0) = \int_0^4 a(t) dt$$

$$v(4) = v(0) + \int_0^4 a(t) dt$$

Area under curve

$$v(4) \approx 20 + 14 = 34 \text{ m/s}$$

$$\Rightarrow v(4) = v(0) + \int_0^4 v'(t) dt$$

definite integral of rate of chg is the total change.

$$\begin{array}{l} \text{total chg of} \\ f(x) \\ \text{between } x=a \text{ \& } x=b \end{array} = \int_a^b f'(x) dx$$

126\*

$$v(t) = t - 3 ; \text{ interval } [0, 5]$$

Find displacement

$$\text{displacement} = x(5) - x(0)$$

$$x(t) = \int v(t) dt = \int t - 3 dt$$

$$x(t) = \frac{t^2}{2} - 3t + C$$

$$x(5) - x(0) =$$

$$\left( \frac{5^2}{2} - 3(5) + C \right) - \left( \frac{0^2}{2} - 3(0) + C \right)$$

$$= \frac{25}{2} - \frac{30}{2} = \left( -\frac{5}{2} \right)$$

$$\text{distance} = \int_0^5 |t-3| dt = \int_0^3 -(t-3) dt + \int_3^5 (t-3) dt$$

$$= \int_0^3 -t + 3 dt + \int_3^5 t - 3 dt$$

$$= \left( -\frac{t^2}{2} + 3t \right) \Big|_0^3 + \left( \frac{t^2}{2} - 3t \right) \Big|_3^5$$

$$= \left( -\frac{9}{2} + 9 \right) - (0) + \left( \frac{25}{2} - 15 \right) - \left( \frac{9}{2} - 9 \right)$$

$$= -9 + 9 + \frac{25}{2} - 15 + 9 = -6 + \frac{25}{2} = \frac{13}{2}$$

$$\int_0^5 |t-3| dt =$$

$$f_n \text{Int}(\text{abs}(x-3), x, 0, 5)$$

Math 9

Math  
→ (Num)  
Center